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### *Protocolle der Verhandlungen der zweiten Conferenz der Commission für die Vorberathung der Beobachtung des Venus-durchgangs von* 1874. Berlin, 27–28 Marz, 1871.

The commissioners present were Hansen, Argelander, Paschen, Seidel, Schönfeld, Bruhns, Förster, Rümker, Auwers, and Winnecke. It was resolved that there should be four heliometer-stations, viz. in the northern hemisphere, one in Japan or China (it being assumed that there would be a Russian heliometer-expedition or expeditions to north-eastern Asia), and in the southern hemisphere three, viz. two in the neighbourhoods of Kerguelen's Island and Auckland's Islands, and the third at Mauritius. And four photographic stations, viz. the northern heliometer-station, those of Kerguelen's and the Auckland Islands, and a station in Persia between Mascat and Teheran. It was considered that there would be required nine astronomers, eight photographers, and nine assistants.

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### *Ueber das Rotations-gesetz der Sonne und der grossen Planeten, von F. Zöllner* (*from the Berichten of the R. Saxon Society of Sciences, Feb.* 1871, *pp.* 49–113.)

The daily rotation-angle of a point on the Sun's surface, as determined by observations of the spots, is found to vary according to the latitude $\phi$ of the point on the Sun's surface, and Mr. Carrington obtained for this angle the empirical value

$$\xi = 865' - 165' \sin^{\frac{7}{4}}\phi,$$

but for this M. Faye proposed to substitute,

$$\xi = 862' - 186' \sin^2\phi,$$

The author, making certain suppositions as to the fluid or gaseous envelope of the Sun, arrives at an expression of the form,

$$\xi = \frac{A - B \sin^2\phi}{\cos\phi}$$

and he finds from the observations

| For North Hemisphere | For South Hemisphere |
|---|---|
| $A = 863'{\cdot}8$ | $A = 861'{\cdot}8$ |
| $B = 613{\cdot}2$ | $B = 620{\cdot}2$ |

or assuming for A in the two hemispheres the common value $= 863'{\cdot}8$, then the values for B in the two hemispheres are $= 613'{\cdot}2$ and $631'{\cdot}1$ respectively. He finds that his formulæ represent the observations somewhat better than either of the

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former ones (but the difference is by no means striking). He examines also in connexion with observations by Spörer the formula

$$\xi = \frac{A' - B' \sin^2 \varphi}{\cos \varphi} - C' \sin \varphi$$

with the values

$$A' = 877'{\cdot}07$$
$$B' = 387{\cdot}07$$
$$C' = 154{\cdot}39$$

The memoir contains also a discussion of the evidence afforded by the observations of *Jupiter* and *Saturn* of a like drift of the exterior envelopes over the surfaces of the planets, and various discussions as to the phenomena generally.

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